**Section 611.731 Gross Alpha**

Monitoring for Gross Alpha Particle Activity, Radium-226, Radium-228, and Uranium

a) A CWS supplier must monitor to determine whether it complies with Section 611.330(b), (c), and (e). For monitoring gross alpha particle activity, radium-226, radium-228, uranium, and beta particle and photon radioactivity in drinking water, "detection limit" is defined as in Section 611.720(c).

1) Applicability and Sampling Location for an Existing CWS Supplier. An existing CWS supplier using groundwater, surface water, or both groundwater and surface water must sample at every entry point to the distribution system representing all sources the supplier uses (a sampling point) under normal operating conditions. The supplier must take each sample at the same sampling point, unless conditions make another sampling point more representative of each source or the Agency designates a distribution system location under subsection (b)(2)(C).

2) Applicability and Sampling Location for a New CWS Supplier. A new CWS supplier or a CWS supplier using a new source of water must begin initial monitoring for the new source within the first quarter after beginning to use the source. A CWS supplier must conduct more frequent monitoring as directed by the Agency in a SEP due to possible contamination or changes in the distribution system or treatment processes that may increase the concentration of radioactivity in the supplier's finished water.

b) Initial Monitoring. The Agency may issue a SEP directing a CWS supplier to monitor for gross alpha particle activity, radium-226, radium-228, and uranium for four consecutive quarters at all sampling points. The Agency may revise the SEP waiving the final two quarters of initial monitoring for a sampling point if the results of the samples from the previous two quarters are below the detection limit. For gross alpha particle activity, uranium, radium-226, and radium-228 monitoring, the Agency may issue a SEP waiving the final two quarters of initial monitoring for a sampling point if the results of the samples from the previous two quarters are below the detection limit. If the average of the initial monitoring results for a sampling point is above the MCL, the supplier must collect and analyze quarterly samples at that sampling point until its results from four consecutive quarters are at or below the MCL, unless the Agency issues a SEP requiring another schedule as part of a formal compliance agreement.

c) Reduced Monitoring. The Agency may allow a CWS supplier to reduce the future frequency of monitoring from once every three years to once every six or nine years at each sampling point, based on certain criteria:

1) If the average of the initial monitoring results for each contaminant (i.e., gross alpha particle activity, uranium, radium-226, or radium-228) is below the detection limit Section 611.720(c)(1) specifies, the supplier must collect and analyze for that contaminant using at least one sample at that sampling point every nine years.

2) For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is at or above the detection limit but at or below one-half the MCL, the supplier must collect and analyze for that contaminant using at least one sample at that sampling point every six years. For combined radium-226 and radium-228, the supplier must combine the analytical results. If the average of the combined initial monitoring results for radium-226 and radium-228 is at or above the detection limit but at or below one-half the MCL, the supplier must collect and analyze for that contaminant using at least one sample at that sampling point every six years.

3) For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is above one-half the MCL but at or below the MCL, the supplier must collect and analyze at least one sample at that sampling point every three years. For combined radium-226 and radium-228, the supplier must combine the analytical results. If the average of the combined initial monitoring results for radium-226 and radium-228 is above one-half the MCL but at or below the MCL, the supplier must collect and analyze at least one sample at that sampling point every three years.

4) A supplier must use the samples it collected during the reduced monitoring period to determine the monitoring frequency for subsequent monitoring periods (e.g., if a supplier's sampling point is on a nine year monitoring period, and the sample result is above one-half the MCL, then the next monitoring period for that sampling point is three years).

5) If a supplier has a monitoring result exceeding the MCL while on reduced monitoring, the supplier must collect and analyze quarterly samples at that sampling point until the supplier has results from four consecutive quarters below the MCL, unless the supplier enters into another schedule as part of a formal compliance agreement with the Agency.

d) Compositing. To fulfill quarterly monitoring requirements for gross alpha particle activity, radium-226, radium-228, or uranium, a supplier may composite up to four consecutive quarterly samples from a single entry point if analysis is done within a year after collecting the first sample. The supplier must treat analytical results from the composited sample as the average analytical result to determine whether the supplier complies with the MCLs and the future monitoring frequency. If the analytical result from the composited sample is greater than one-half the MCL, the Agency may issue a SEP directing the supplier to take additional quarterly samples before allowing the supplier to sample under a reduced monitoring schedule.

e) A supplier may substitute a gross alpha particle activity measurement for the required radium-226 measurement, provided the measured gross alpha particle activity does not exceed 5 pCi/L. A supplier may substitute a gross alpha particle activity measurement for the required uranium measurement, provided the measured gross alpha particle activity does not exceed 15 pCi/L.

1) The gross alpha measurement must have a confidence interval of 95% (1.65σ, where σ is the standard deviation of the net counting rate of the sample) for radium-226 and uranium.

2) When a supplier uses a gross alpha particle activity measurement in lieu of a radium-226 or uranium measurement, the supplier must use the gross alpha particle activity analytical result to determine the future monitoring frequency for radium-226 or uranium.

3) If the laboratory does not detect gross alpha particle activity, the supplier must use one-half the detection limit to determine whether it complies and its future monitoring frequency.

BOARD NOTE: This Section derives from 40 CFR 141.26(a).

(Source: Amended at 47 Ill. Reg. 16486, effective November 2, 2023)